

Nano Food: Regulation or the new GMO debate?

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Want a little nano with your coffee?



Super automatic Primea Ring espresso maker
“Saeco Primea Gives Coffee Connoisseurs the Ultimate Experience”

Nano-packaging

- Enhancements to plastic packaging barriers
- Incorporation of active components with new properties
- Changed mechanical, barrier, and antimicrobial properties
- Controlled release packaging, mostly antioxidants and antimicrobials.
- Sensor and signaling devices
- Nanosensors for traceability and monitoring food conditions during storage and transport and packaging that can detect when its contents are spoiling, and change color to warn consumers
- Oxygen scavengers, moisture absorbers, barrier packaging

Areas in food where nanotechnology is being used or will soon be used

- Food production/pesticides/animal breeding
- Additives
- Taste and texture improvements/modifications
- Preservation
- Sprays
- Anti-bacterial coatings (largely nano-silver)
- Bakery and meat products, and carbonated beverages/water bottles predominately.
- Dietary Supplements
- Delivery systems

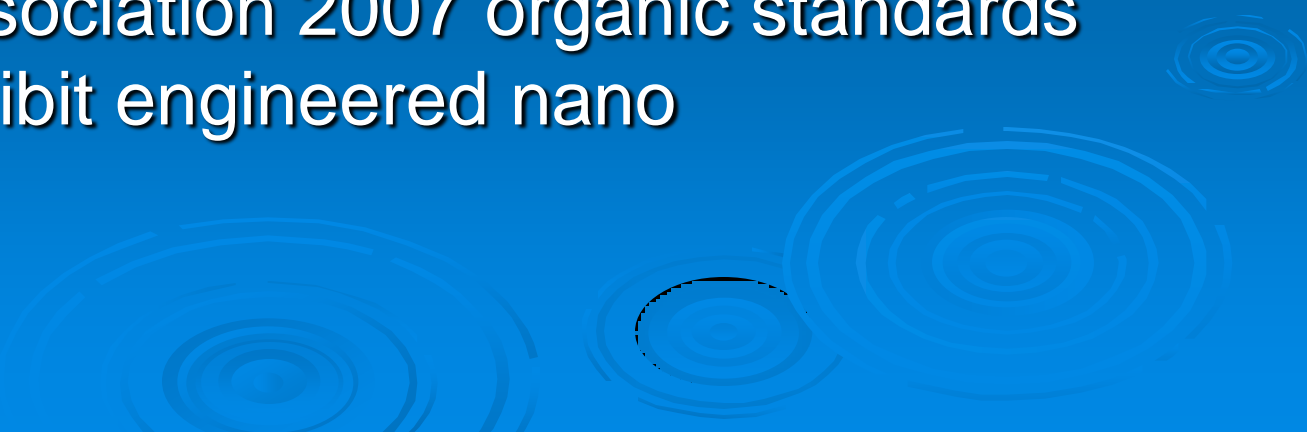
Spray Technology



Coatings on bakery and dairy items



Nano is contrary to Organic Rules

- Contrary to Organic Principles
 - Contrary to Organic Standards (Engineered nano materials = Synthetic)
 - Time to act is now
 - Size matters, but nano effects start before 100 nm
 - UK Soil Association 2007 organic standards first to prohibit engineered nano
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Soil Association (UK) Organic Standards- Jan 2009

- 40.7.11
- You must **not** use ingredients containing manufactured nanoparticles, where:
 - • the mean particle size is 200nm or smaller, and
 - • the minimum particle size is 125nm or smaller.
- Note – we recognise that this standard will have implications for some
 - established manufacturing processes that produce nanoparticles incidentally.
 - Until we research these more fully, we will not apply this standard to them.
 - The standard does apply to engineered nanoparticles.

US FDA Food contact notification guidance —December 2007

- “In cases where particle size is important to achieving the technical effect or may relate to toxicity, sponsors should describe particle size, size distribution, and morphology, as well as any size morphology, size-dependent properties.”
- “If technical effect is dependent on particle size, sponsors should present data that demonstrate the specific properties of the particles that make them useful for food-contact applications.”
- <http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/FoodIngredientsandPackaging/ucm081818.htm>

European Food Safety Agency

March 2009

- There are substances approved for use in food and feed, which have been claimed to also be available in nanoscale dimensions. In view of the concerns about nanoscale preparations, a re-evaluation of the risk assessment of such substances should be considered.
- http://www.efsa.europa.eu/cs/BlobServer/Scientific_Opinion/sc_op_ej958_nano_en,0.pdf?ssbinary=true p.27

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Nano Food Should Not Be GRAS

- “Despite the challenges inherent in assessing the safety of food ingredients containing engineered nanomaterials, under the Federal Food, Drug, and Cosmetic Act and FDA regulations, a company may market such an ingredient without informing FDA as long as the company has concluded the substance is GRAS.” (GAO, *FOOD SAFETY: FDA Should Strengthen Its Oversight of Food Ingredients Determined to Be Generally Recognized as Safe (GRAS)*. pg. 28)

What can be learned from the GMO debate that will help us regulate Nanotechnology

- Don't mess with Food
- If you do, don't say that it is just like the traditional food, nano should not be GRAS
- Mandatory Labeling of the products
- Make safety and efficacy data public, not secret.
- Don't use arbitrary definitions, i.e. larger than 1nm or less than 100nm for all nano; all nano is not alike, surface area needs to be included in definition. FDA definition for drugs, i.e. 1000nm probably works best.

Nano lessons from GMO debate continued

- Develop pre-market approval processes
- Require approvals BEFORE products on on the market and monitoring AFTER
- Give the public a voice in deciding what to put on the market
- Include food workers in the decision making process
- Governments, not non-profits or trade associations should maintain lists of products on the market.
- Further research on to address the knowledge gaps which currently exist and development of specific risk assessment methodologies. Fund this adequately.
- Apply the Precautionary Principle. Don't wait for illnesses and death before regulating.

Thank You!

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